U.S. DEPARTMENT OF ENERGY

Office of River Protection
Congressional Nuclear Cleanup Caucus

March 10, 2011

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Environmental Management: A National Responsibility

- We reduce risks and protect our workers, our communities and the environment through cleanup.
- Our work is urgent and essential to the health and safety of our communities and the nation.
- Our mission is not discretionary – it is a Federal obligation to address the Cold War environmental legacy cleanup and honor our regulatory commitments.
- We have demonstrated value for the American taxpayer by delivering significant progress in the past several years in reducing risks and the overall liability – but our work is not done.
- The Environmental Management portfolio is one of our nation's largest liabilities – we have a responsibility to relieve future generations of this environmental and financial liability.
- Costs and risks increase over time.

Office of River Protection
2016 Cleanup Vision

Transition from a waste storage to a waste treatment and immobilization mission of Hanford's 53 million gallons of tank waste by 2016

- ✓ Deliver on regulatory commitments to the State of Washington:
  - ✓ Complete construction of the Waste Treatment Plant: Pivot the project from design/construction to commissioning/operations
  - ✓ Empty all 16 Single-Shell Tanks in C-Farm
  - ✓ Prepare Hanford's tank farm feed/delivery systems: Transfer waste feed to the Waste Treatment Plant when it becomes operational in 2016
- ✓ Turnover and commission 16 of 18 Waste Treatment Plant facilities: Commission the Laboratory, Low-Activity Waste Facility, and Balance of Facilities to accelerate the treatment and immobilization of Hanford tank waste by three years
- ✓ Develop and deploy transformational technologies for supplemental treatment and secondary waste

Office of River Protection Overview

Retrieve, immobilize and dispose of radioactive and chemical tank waste and close Hanford's Tank Farms

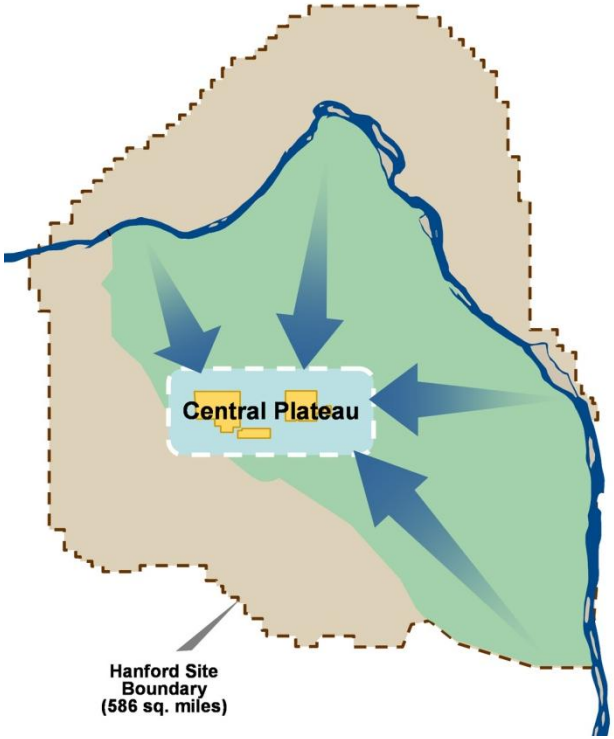
Tri-Party Agreement (TPA)/Consent Decree

Tank Farms

- 177 underground storage tanks
  - 149 Single Shell Tanks (SST)
  - 28 Double Shell Tanks (DST)
- 53 million gallons radioactive and chemical waste
- 176 million curies radioactivity
- 151,000 tons complex chemicals
- Tank Closure and Waste Management Environmental Impact Statement (TC&WM EIS)

Waste Treatment Plant (WTP)

- Design/build
- Operational 2019
- Treat and immobilize in glass radioactive and chemical tank waste



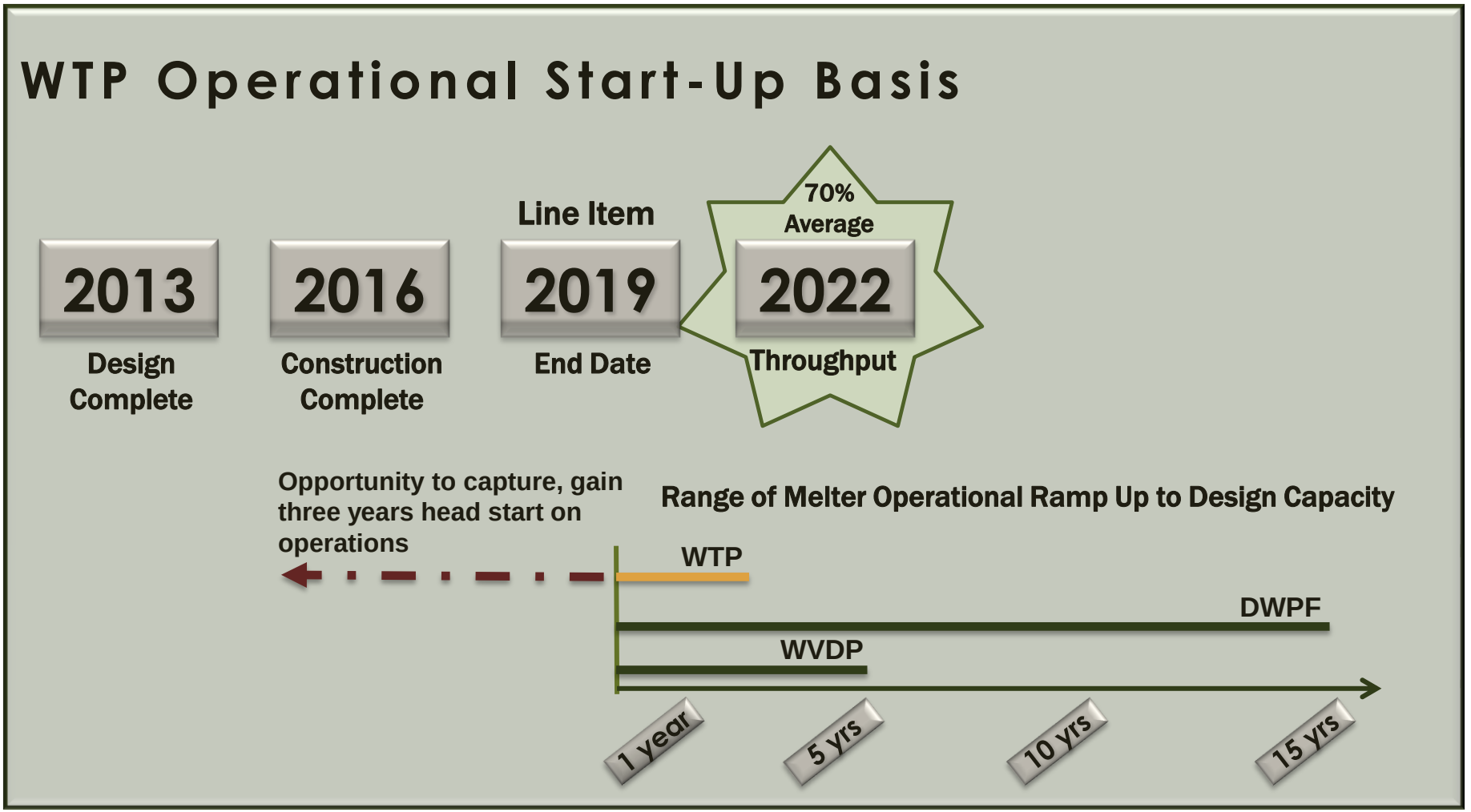
Key River Protection Project TPA/ Consent Decree Milestones:	
Retrieve C Farm SST Waste	2014
WTP Hot Operations	2019
Retrieve All SST Waste	2040
Treat All Tank Waste	2047
Complete Mission	2052

EM Environmental Management

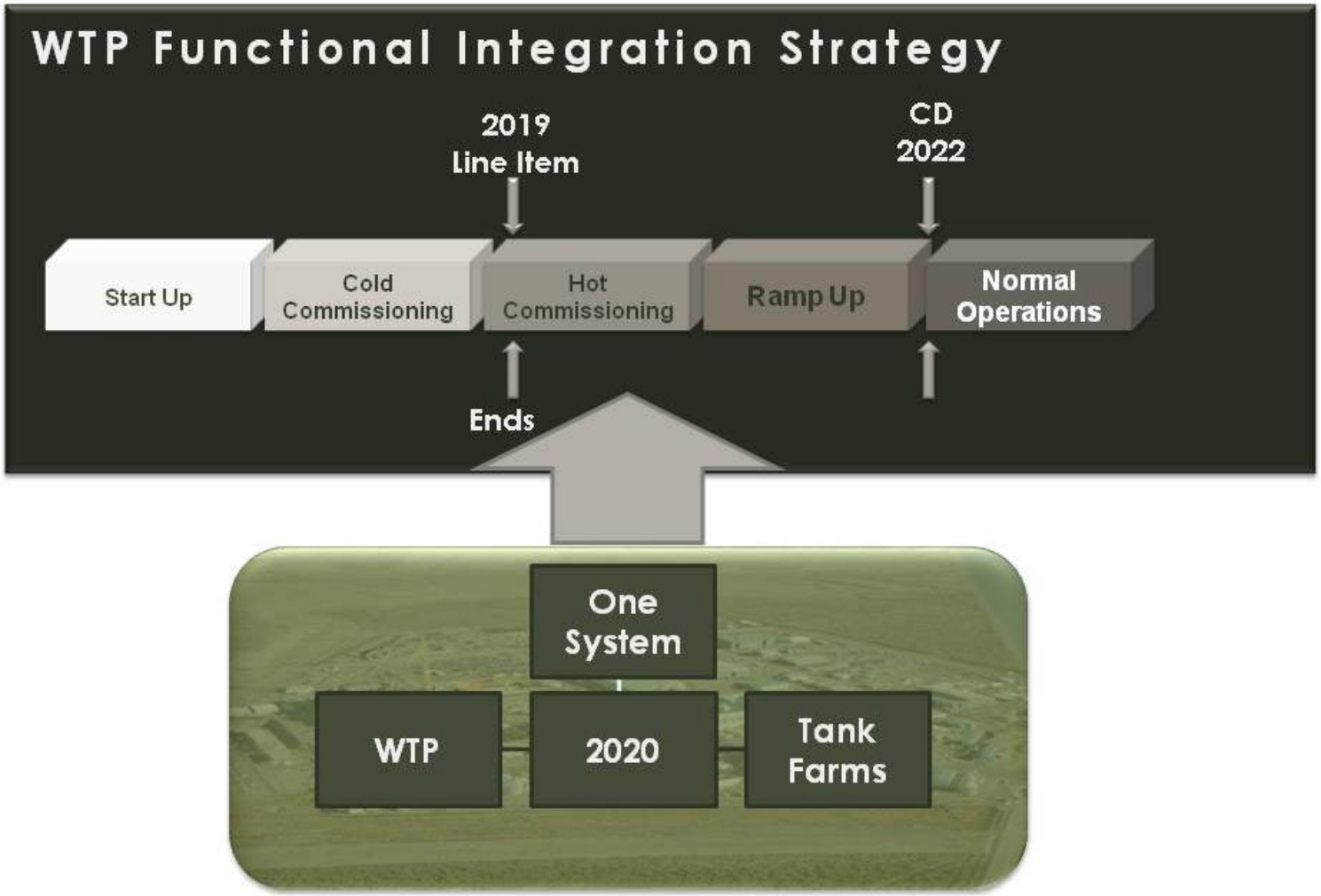
Mission Status

- WTP 58% complete
- All External Flowsheet Review Team (EFRT) technical issues resolved
- Seven SSTs retrieved, four retrieved to the limits of technology
- Completing Recovery Act work successfully within cost and schedule – confirmed by OIG audit
- Three major initiatives in progress
  - Enhanced Tank Waste Strategy
  - Supplemental Treatment and Immobilization Project
  - ORP 2020 Vision

WTP Operational Start-Up Basis

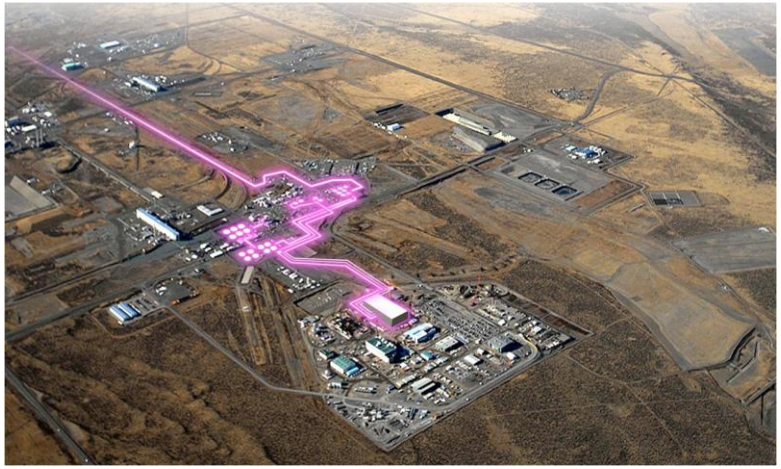


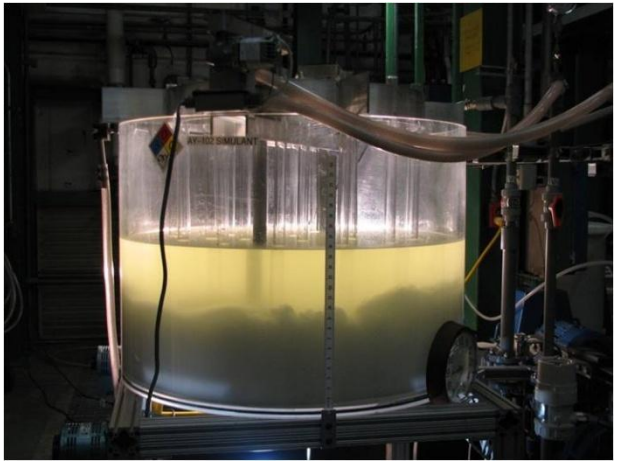
Integration Into One System



Tank Farms Preparations

- Working to extend the life of critical operating nuclear facilities essential to waste feed delivery
- Continue tank retrievals and putting systems in place to provide consistent waste feed to the WTP
- Strategic planning, technology development, supplemental waste treatment





FY 2012 Budget Request

	FY 2010 Appropriation	FY 2012 Request
River Protection Budget Summary		
Defense Environmental Cleanup		
Tank Farm Activities	406,600	521,391
Waste Treatment and Immobilization Plant	690,000	840,000
Total, Office of River Protection	1,096,600	1,361,391

Dollars in Thousands

ORP is Critical to the Hanford Mission

- Hanford is the largest environmental liability in the EM clean-up program.
- The risk is in the tank waste – ORP's mission is to eliminate this risk.
- Committed to absolute worker and public safety.
- Protecting the Columbia River is vital, urgent and our obligation to the people of the Pacific Northwest.
- Collaborating with Regulators on Hanford Cleanup vision and strategy, general support from Tribal Nations, and stakeholders.

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Cleaning Up Hanford's Tank Farms

Presentation to Congressional Nuclear Cleanup Caucus

Chuck Spencer, President and Project Manager

March 10, 2011

Tank Operations Contract

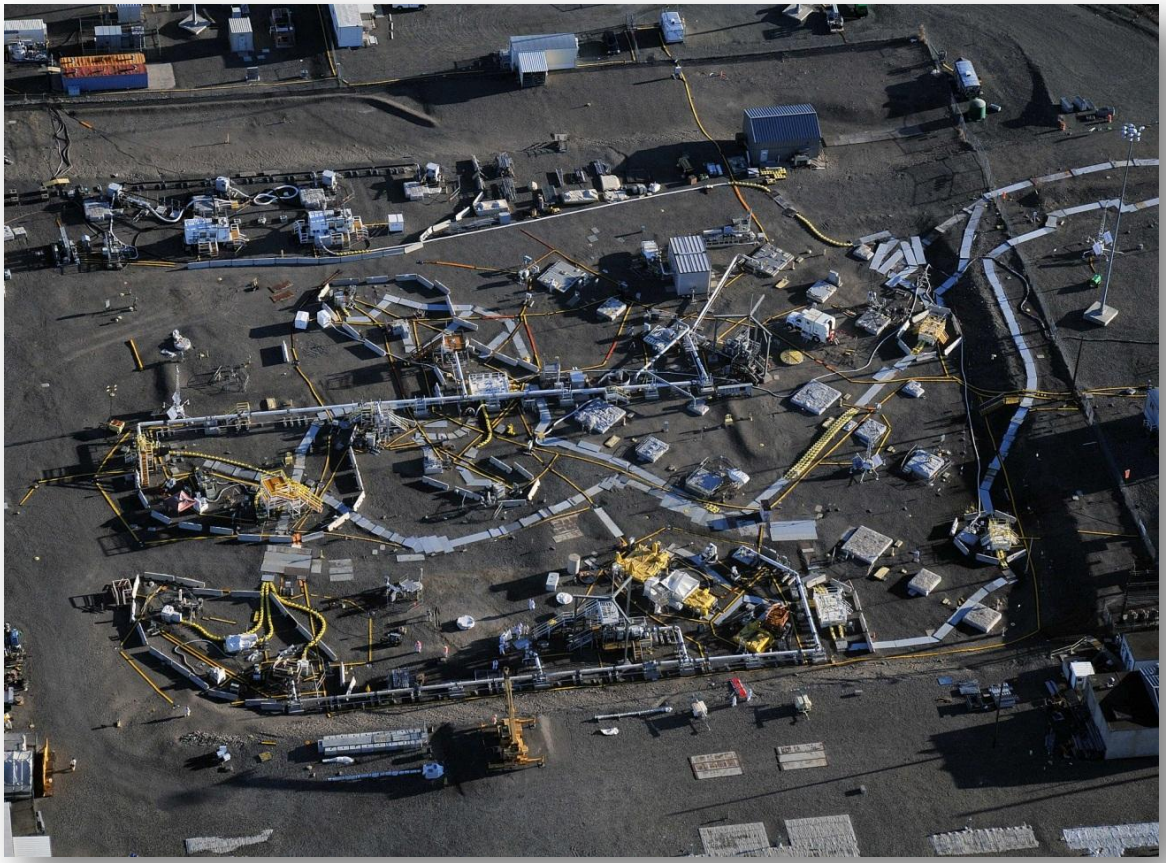
- **Washington River Protection Solutions (WRPS) awarded the tank farms contract in October 2008**
- **WRPS is a joint venture between URS Corporation and Energy Solutions, with integrated subcontractor AREVA**
- **1,700 current employees**

Waste Retrieval Progress Accelerates

- **2010 marked the most tank retrieval progress ever:**
  - Six tanks currently in progress at varying stages from design to retrieval—most ever at one time
  - Accomplished the equivalent of three tank retrievals
  - Cut 55-inch diameter hole (largest ever) in the top of single-shell tank C-107 to deploy new retrieval system designed and developed by WRPS

Single-Shell Tank Waste Retrieval

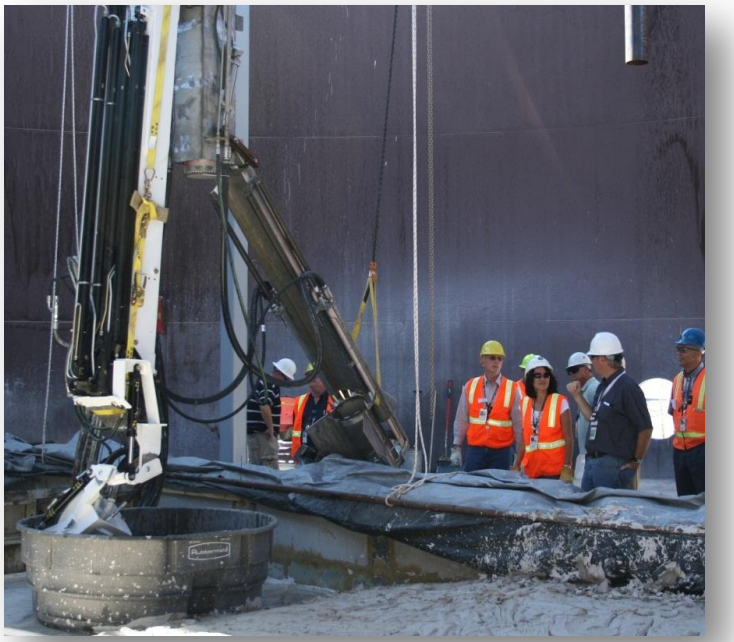
The progress is visible - what moving waste at 6 underground tanks looks like



C Farm

Technology Deployment to Speed Retrieval

- **Mobile Arm Retrieval System**
  - Developed by WRPS
  - Deploys multiple, interchangeable technologies
  - Key to improved performance
  - To be installed this spring
- **Wiped Film Evaporator**
  - A mobile option to 34-year-old single evaporator
  - Will process up to ~800,000 gallons annually (80 percent of existing evaporator recent annual throughput)



Environmental Protection a Priority

- **Tank farm moisture barrier over TY Farm**
  - Four-inch layer of asphalt covering tank farm
  - Prevents water from entering soil and pushing contaminants further underground
- **Vadose zone characterization in preparation for next barrier**
- **Ongoing SST and DST integrity evaluations**
- **Ventilation and monitoring system upgrades**

Maximizing Recovery Act Funds

- **Recovery Act funding:**
  - $326 million allocated through September 2011
  - On schedule, under budget; savings reinvested
- **Key work completed:**
  - Tank farm infrastructure upgrades
    - Installing new waste transfer lines
    - Replacing waste transfer valves
  - Facility life extension
    - Major upgrades to critical analytical laboratory
    - Upgrading existing evaporator system
  - Preparing to feed the WTP
    - Analyzing tank waste consistency
    - Testing waste mixing methods

Setting New Records in Safety

- **Injury rates declining to historic lows (TRC rates reduced 27% first year; 25 % more than last year)**
- **ORP reportables trending to historic lows, while work pace increased in high-radiation areas**
- **ALARA program and engineering improvements made to resolve decade-old tank vapors issue**
- **Progress toward instituting major conduct of operations culture change**

Baseline Waste Treatment Plant Support & Integration

- **Much improved projects integration**
- **Waste feed delivery upgrades**
- **Tank waste mixing & sampling**
- **Storage facility & secondary waste treatment projects**
- **Supplemental treatment options**

One System Approach Integration

- **Multi-purpose technology deployment**
  - Small column ion exchange and rotary micro-filter
- **Integration**
  - Waste acceptance criteria
  - Start-up testing/operational readiness
  - Project design
  - Risk management
  - Common requirements approach (ISMS, ConOps, etc.)
  - Hot commissioning
  - Early glass
  - Enhanced tank waste strategy
- **Funding**

A Responsible Steward

- **Overall project performance on schedule, under budget**
- **All performance milestones achieved in FY-10**
- **Maximizing value of taxpayer dollars**
  - In first two years of contract, completed $753 million of work for $692 million in cost; reinvested savings in additional work
  - Positive Inspector General review of Recovery Act work

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Progress at the Hanford Waste Treatment Plant (WTP)

Presentation to Congressional Nuclear Waste Cleanup Caucus

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Project Director
Bechtel National, Inc.

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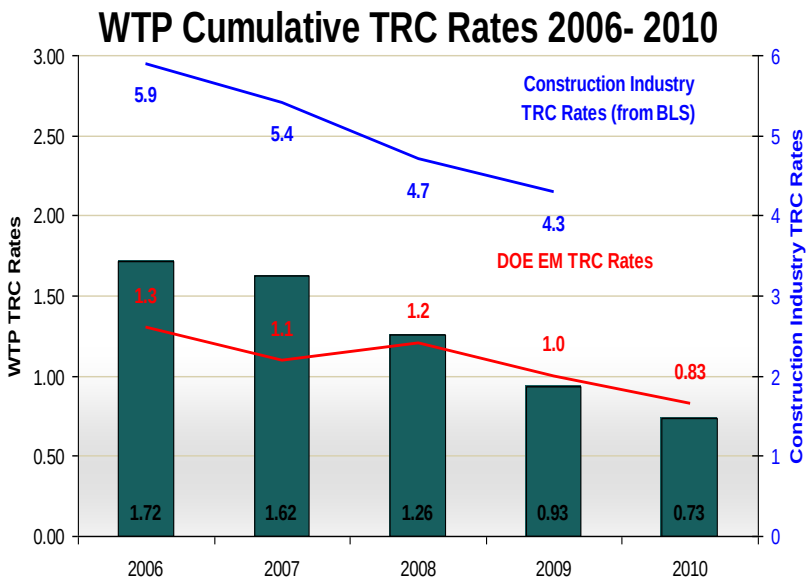
EM Environmental Management

Waste Treatment Plant 58% Complete

Worker Safety Performance Among the Best



We've Had a Very Good Year

- **Achieved good Schedule and Cost Performance**
  - **Overall project since inception-Dec. 2000**
- **Closed out all major technical issues that affect Project deliverables**
- **Proactively managing design implementation challenges**
- **Accomplished significant physical progress with high quality in all areas**
- **Successful independent assessments conducted**
  - **Creates transparency in design and construction and confidence for future operations**
    - **Environmental Management Advisory Board**
    - **Construction Project Review**
    - **DOE-Health, Safety and Security**

DOE assessment indicates WTP has significantly improved

Pretreatment Facility

World's largest radioactive chemical separations facility

Construction complete in 2016

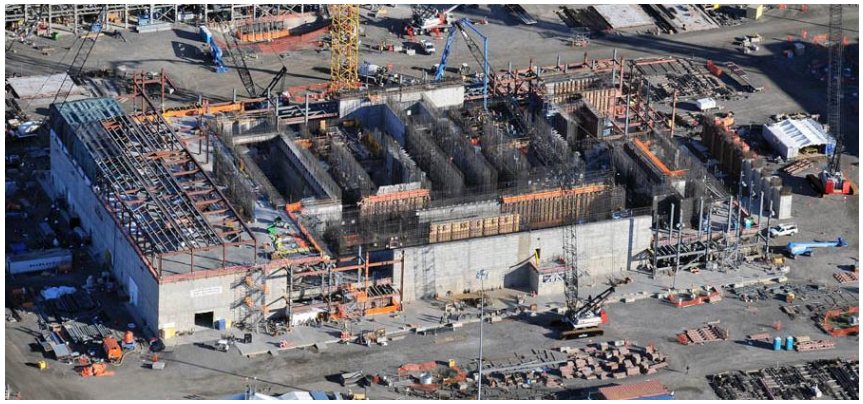
- **77% design complete**
- **42% equipment & material procurement complete**
- **34% construction complete**

High-Level Waste Vitrification Facility

Turns high-level waste into glass

Construction complete in 2016

- **85% design complete**
- **64% equipment & material procurement complete**
- **34% construction complete**



Low-Activity Waste Vitrification Facility

Turns low-activity waste into glass

Construction complete in 2014

- **90% design complete**
- **83% equipment & material procurement complete**
- **61% construction complete**

Analytical Laboratory

Ensures glass meets regulatory requirements

Construction complete in 2014

- **81% design complete**
- **74% equipment & material procurement complete**
- **64% construction complete**

Balance of Facilities

Vast infrastructure to support operations

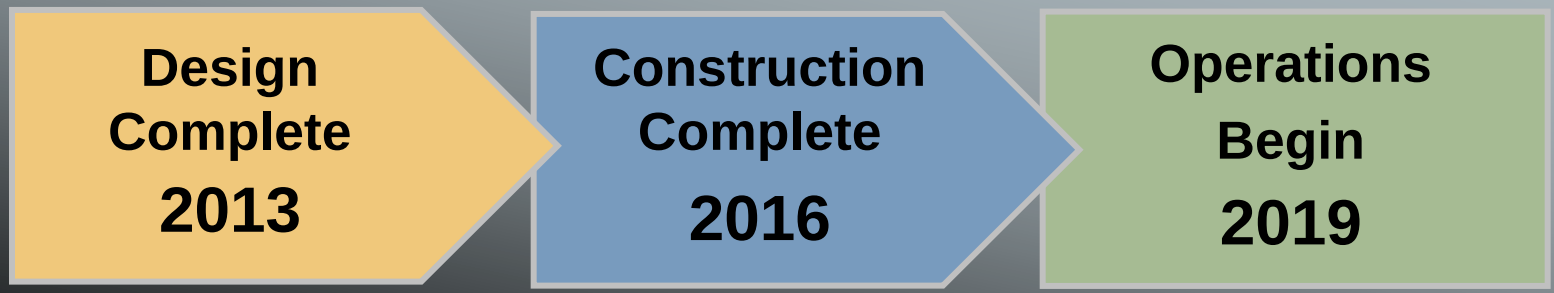
Complete construction for support facilities and systems throughout 2012-2016

- **76% design complete**
- **47% equipment & material procurement complete**
- **61% construction complete**

WTP Awarded $1.2 Billion to Small Businesses

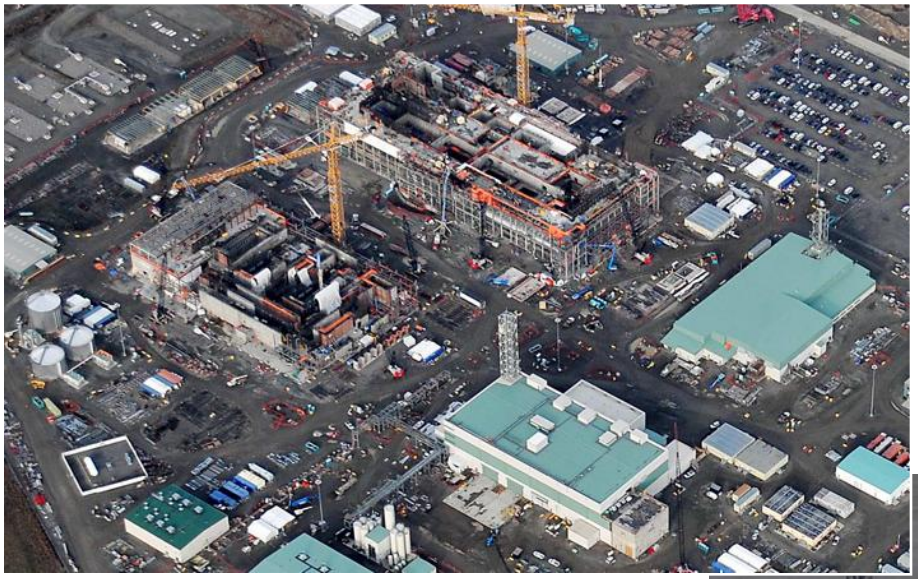
Nearly $1 billion to Washington State Businesses Since Project Inception

Completing the Project: "3-6-9"



Modified funding profile necessary to achieve 3-6-9 schedule

Pivoting from Design/Construction to Construct/Start-up and Commissioning



Start Low-Activity Waste glass production in 2016

Modified Funding Profile Provides Confidence

- **Basis for the "3-6-9" schedule**
- **Takes advantage of completion of facilities between 2012-2016 to allow glass production in 2016**
- **Allows DOE to conduct phased operational readiness reviews**
- **Gains three years in operational experience**
- **Total Project cost remains at $12.263 billion**

Supporting "One System"

- **One System Organization**
  - **DOE-ORP, Bechtel National, Inc., Washington River Protection Solutions, 2020 Vision Integrated Project Team**
- **Fully aligned commitment for 70% production in 2022**
- **Integrated planning, scheduling, and management of Tank Operations/WTP activities that are required to operate WTP**
- **One system risk and opportunity management**

Design and Construction

Construction & Commissioning